

Listing of Claims:

The listing of the claims will replace all prior versions, and listings, of claims in the application. Please amend the claims as follows:

Claims 1 to 12 (canceled).

Claim 13. (original) A MEMS reconfigurable vee antenna comprising:
a transmission line end comprising conductors;
antenna arms, each of the antenna arms being rotatably coupled to a corresponding one of the conductors;
actuator mechanisms; and
support arms, each of the support arms having one end rotatably coupled to a corresponding one of the antenna arms and the other end rotatably coupled to a corresponding one of the actuator mechanisms;
wherein, for each of the actuator mechanisms, when the actuator mechanism is controlled to move linearly forward, the corresponding support arm pushes on the corresponding antenna arm so as rotate the corresponding antenna arm inward, and when the actuator mechanism is controlled to move linearly backward, the corresponding support arm pulls on the corresponding antenna arm so as rotate the corresponding antenna arm outward.

14. (original) The MEMS reconfigurable vee antenna of claim 13 wherein the transmission line end comprises a CPS transmission line end and the conductors comprise a pair of coplanar conductors.

15. (original) The MEMS reconfigurable vee antenna of claim 13 wherein the transmission line comprises a CPW transmission line end and the conductors comprise a pair of ground plane conductors and a center conductor.

16. (original) The MEMS reconfigurable vee antenna of claim 13 further comprising:
first micro-mechanical hinges, each of the first micro-mechanical hinges rotatably coupling one of the antenna arms to a corresponding one of the conductors;

second micro-mechanical hinges, each of the second micro-mechanical hinges rotatably coupling one end of a corresponding one of the support arms to a corresponding one of the antenna arms; and

third micro-mechanical hinges, each of the third micro-mechanical hinges rotatably coupling one end of a corresponding one of the support arms to a corresponding one of the actuator mechanisms.

17. (original) The MEMS reconfigurable vee antenna of claim 16 wherein each first micro-mechanical hinge comprises:

a first component;

a second component;

a third component with an opening in a plane;

a pin that is normal to the plane and sized to closely fit within the opening;

the first and second components being fixedly coupled to corresponding opposite ends of the pin on opposite sides of the third component and having dimensions within the plane that are greater than the size of the opening so that movement of the third component relative to the first component, the second component, and the pin is limited to rotation in the plane.

18. (original) The MEMS reconfigurable vee antenna of claim 17 wherein each first micro-mechanical hinge further comprises:

an anchor that fixedly couples the first component to the corresponding opposite end of the pin; and

a via that fixedly couples the second component to the corresponding opposite end of the pin.

19. (original) The MEMS reconfigurable vee antenna of claim 18 wherein for each first micro-mechanical hinge:

the first, second, and third components are respectively formed from first, second, and third major layers of polysilicon;

the anchor is formed from a first intermediate layer of polysilicon between the first and second major layers of polysilicon; and

the via is formed from a second intermediate layer of polysilicon between the second and third major layers of polysilicon.

20. (original) The micro-mechanical hinge of claim 17 wherein the opening and the pin are round, the size comprises a diameter, and the dimensions comprise cross sections.

21. (original) The MEMS reconfigurable vee antenna of claim 16 wherein each second and third micro-mechanical hinge comprises:

a base ring;

a rotation ring disposed within the base ring;

a hinge pin disposed within the rotation ring;

one or more attachment arms that fixedly couple the hinge pin to the base ring and guide the rotation ring as it rotates about the hinge pin's axis and within the base ring; and

a support arm having (a) a first end fixedly coupled to the rotation ring, and (b) a second end that rotates about the hinge pin's axis when the rotation ring rotates.

22. (original) The MEMS reconfigurable vee antenna of claim 21 wherein each second and third micro-mechanical hinge further comprises:

first vias that fixedly couple the one or more attachment arms to the hinge pin and the base ring; and

second vias that fixedly couple the first end of the support arm to the rotation ring.

23. (original) The MEMS reconfigurable vee antenna of claim 22 wherein for each second and third micro-mechanical hinge:

the base ring, the rotation ring, and the hinge pin are all formed from a first major layer of polysilicon;

the attachment arms and the support arm are all formed from a second major layer of polysilicon; and

the vias are formed from an intermediate layer of polysilicon between the first and second major layers of polysilicon.

Claims 24 to 62 (canceled).